

# CEC/CPUC Joint Workshop

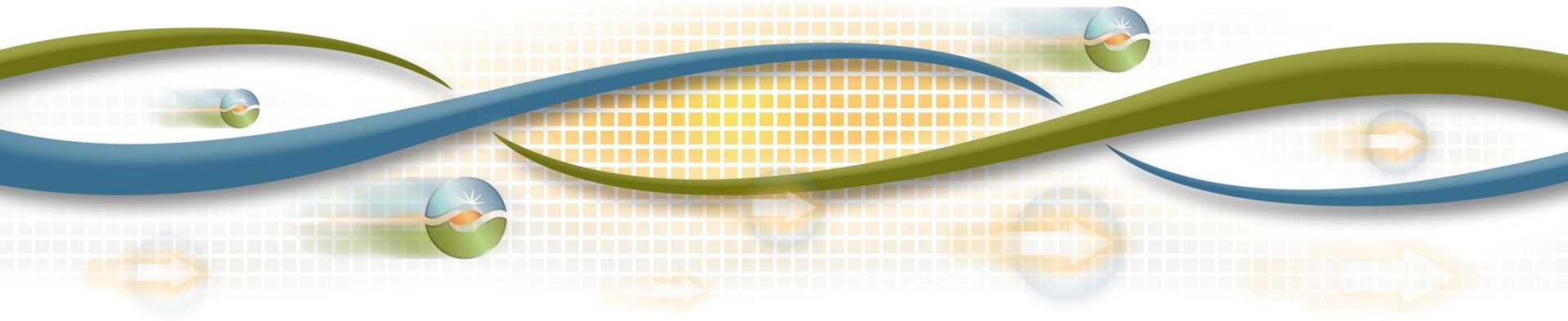
## Electricity Infrastructure Issues Resulting from SONGS Closure

AB 1318

ISO Analyses of Local Capacity and Renewable Integration Needs

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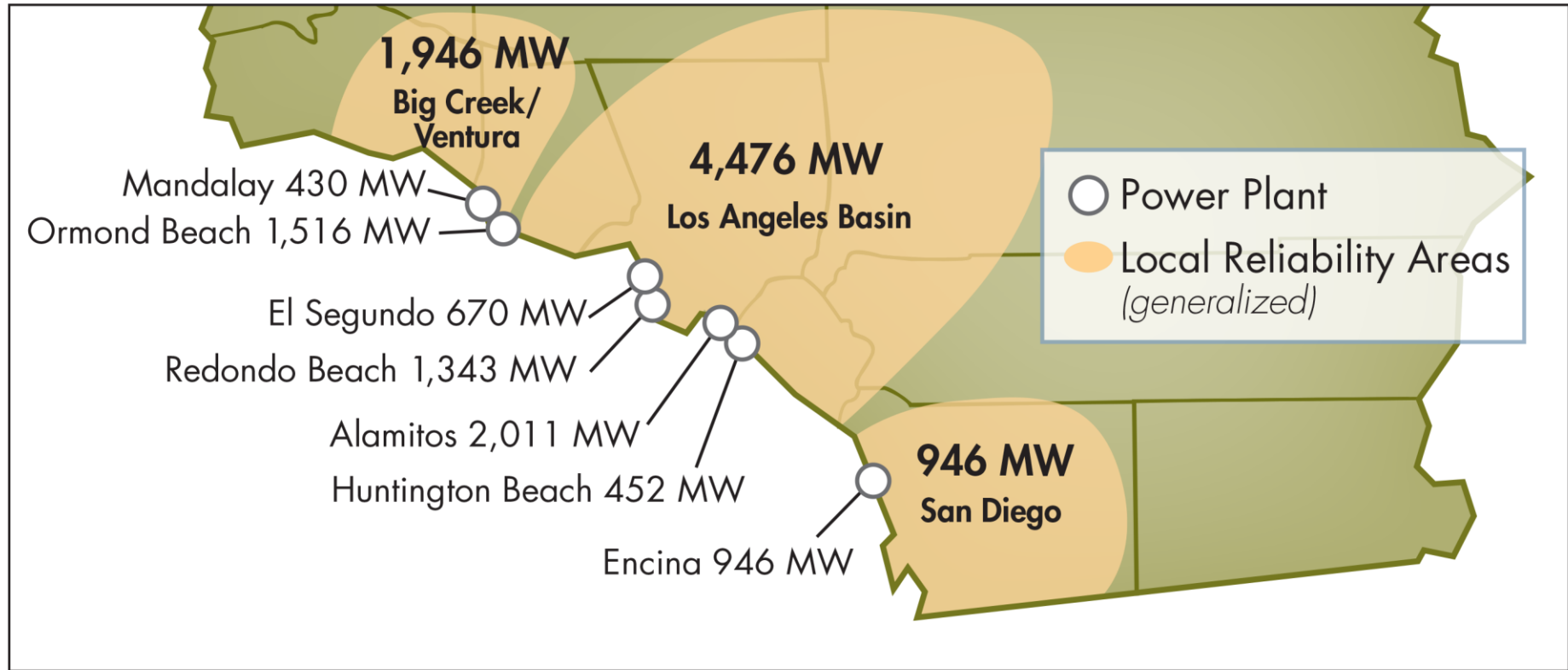
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# Local Capacity Analyses

- SONGS Online (2011-2012 with varying RPS portfolios)
  - Trajectory (mirrors IOU procurement)
  - Environmentally Constrained (high solar and DG)
  - Time Constrained (resources online quickly)
  - Cost Constrained (lowest cost resources)
  - Environmentally Constrained with additional energy efficiency and combined heat and power)
- SONGS Offline (2012-2013 with varying RPS portfolios)
  - RPS Commercial Interest portfolio (**high bookend**)
  - RPS High Distributed Generation portfolio
  - RPS Commercial Interest Portfolio with incremental energy efficiency, demand response and combined heat and power (**low bookend**)

# Analyses modeled all Southern California OTC generation offline with compliance dates by 2022



Note: Map does not reflect 2,200 MW of OTC capacity in LADWP's balancing authority area.

# Common assumptions for SONGS offline bookend studies

Assumption Category	Data Inputs
Study base case	Commercial Interest portfolio (CPUC/ISO RPS Base case)
Demand Forecast	1-in-10 year summer peak load forecast from the CEC's 2012-2022 adopted mid-case load forecast  SCE LA Basin Area: 22,917 MW SDG&E: 6,056 MW
Energy efficiency (committed)	Increase of 8,000 MW embedded in CEC demand forecast (Total of 17,145 MW by 2022)
2013 SONGS mitigation modeled online	Huntington Beach Units 3 and 4 to 2x140 MVAR synchronous condensers  1 80 MVAR capacitor bank each at Johanna and Santiago Substations; two 80 MVAR capacitor banks at Viejo Substation  Re-configured Barre-Ellis 230kV lines from two to four circuits
New Resources modeled online in 2013	Walnut Creek Energy Center (500 MW) El Segundo Repower (560 MW) Sentinel (850 MW)
OTC Generation modeled offline	2018: Encina 2020: Alamitos, Huntington Beach, Redondo Beach, El Segundo

# Incremental assumptions for low bookend study

Service Area	SONGS Outage/Retirement (Assessed March 2013)		
	Incremental EE 2022 Peak Savings <sup>1</sup> (MW)	Incremental CHP 2022 Peak Savings <sup>2</sup> (MW)	Incremental Demand Response <sup>3</sup> 2022 (MW)
SCE	973	15.1	382
SDG&E	187	0	25
Total	1160	15.1	407

<sup>1</sup>From CEC 2012 IEPR incremental energy efficiency study

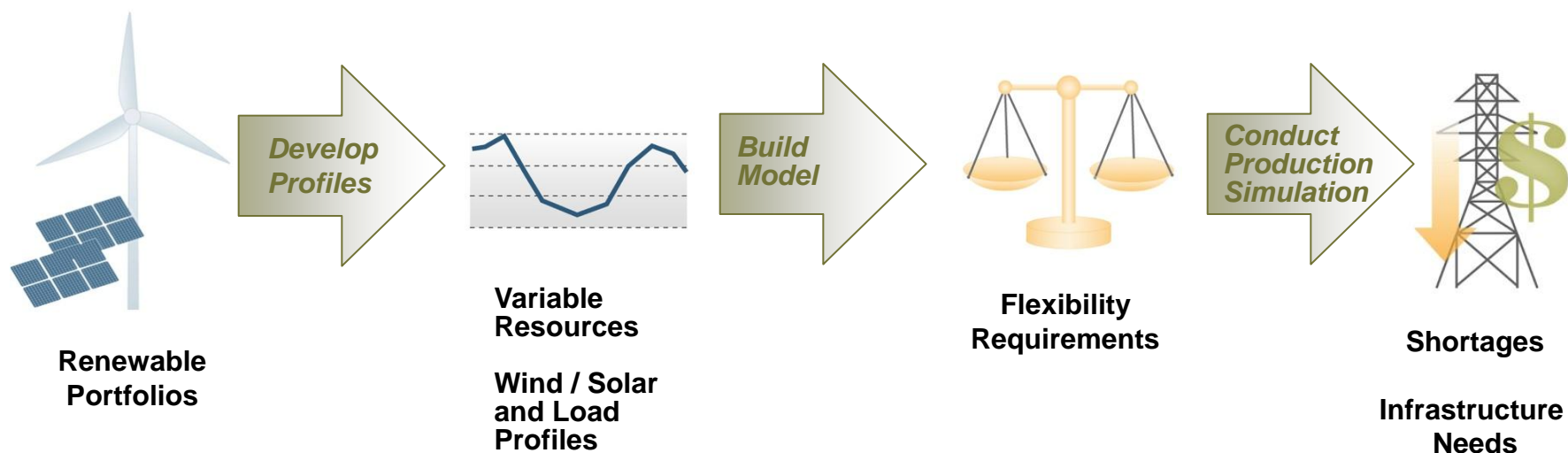
<sup>2</sup>Based on IOU identification of projects

<sup>3</sup>Based on verification with performance of IOU 2012 30-minute or less programs; aggregated amounts consistent with CPUC 2012 LTPP Track I and 2012 SDG&E Power Purchase Tolling Agreement Decisions

# Local capacity study results

Local Capacity Requirement Area	OTC Capacity Available for Repower (MW)	OTC Repowering or Replacement (MW)	New Generation (MW)	Total Generation Need (MW)	Dynamic Reactive Support Need (MVAR)
AB 1318 High Bookend					
LA Basin	4,150	2900	1400-1700	4315-4615	1000-500
San Diego	946	820	300	1,120	960
AB 1318 Low Bookend					
LA Basin	4,150	2,900	400-560	3,300-3,460	1,000-500
San Diego	946	520	300	820	960

# Renewable integration analyses quantify operational requirements and evaluate fleet's ability to meet operating requirements





# Renewable Integration Analyses

- Relied on the Plexos production cost simulation model the ISO uses in its renewable integration efforts as well as CPUC LTPP proceedings
- Determined incremental system-wide flexible capacity needs
- Provided performance profiles of resources in the LA Basin



# Renewable Integration Study Results

Assumptions	Case 1  Base Case	Case 2  New Local Capacity  OTC Retirements	Case 3  Demand Response  Case 2 Sensitivity	Case 4  SONGS Outage and OTC Retirements
Base model	2010 CPUC LTPP Trajectory-High Load	2010 CPUC LTPP Trajectory-High Load	2010 CPUC LTPP Trajectory-High Load	2010 CPUC LTPP Trajectory-High Load
Load	2009 CEC IEPR peak load forecast + 10%	2009 CEC IEPR peak load forecast + 10%	2009 CEC IEPR peak load forecast + 10%	2009 CEC IEPR peak load forecast + 10%
SONGS (MW)	2246	2246	2246	0
Demand response (ISO system-wide MW)	4816	4816	2855	826
Southern California local capacity replacement resources (MW)				
LA Basin	0	2370	2370	4615
Big Creek/Ventura	0	430	430	430
San Diego	0	373	373	920
TOTAL	0	3173	3173	5965
Plexos model output: generic capacity need for renewable integration (ISO system-wide MW)	4600	1251	3212	4870

## Next Steps

- AB 1318 analyses provide a base for developing a more comprehensive solution for Southern California infrastructure following the loss of SONGS
- The task force is looking at solutions that include additional preferred resources and transmission
- It is desirable for replacement generation in Southern California to also be flexible